



Previous Studies Working Group

**CNO T&E 20% Cost Reduction
Task:
EXCOM Meeting**

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Previous Studies Working Group (WG)

- **Mr. Jim Egeland (EXCOMM)**
NAVSEA
- Charles Hutchings (Lead) NAVSEA
- Tom Dobry NAVAIR
- Roger Bergstrom NAVSEA
- Dave Erickson COTF



Previous Studies WG contribution to Roadmap

- PHASE I: Collect documentation on previous studies related to T&E and assemble a study library.
- PHASE II: Provide research and analysis support to all other WGs as required.
- PHASE III: Report findings



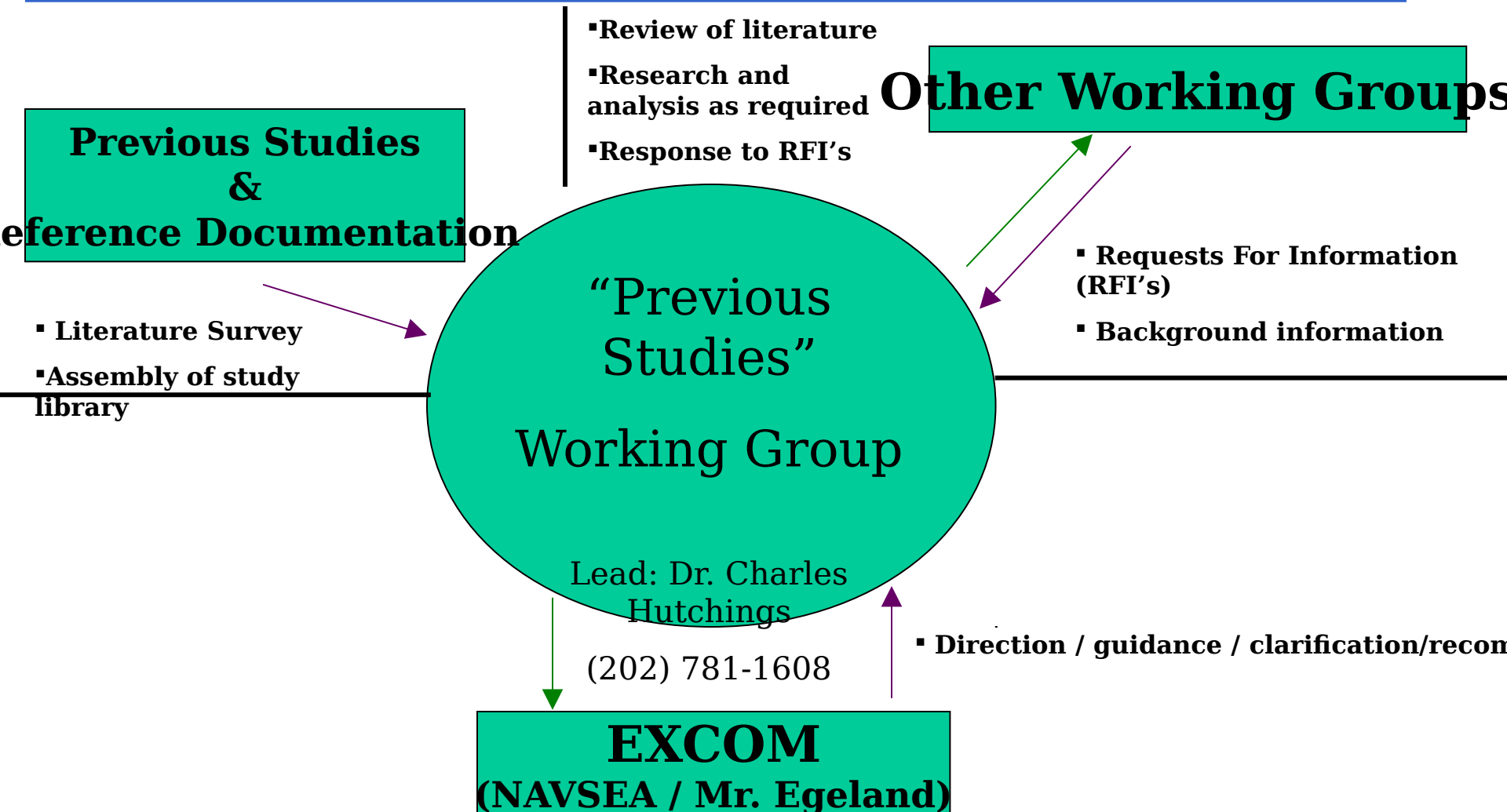
Status

- **59 core documents located to support the study.**
- **More than 150 documents identified.**
- **Documents provided to each Previous Studies WG member on CD.**
- **Providing support to each of other WG.**

Test Planning and Execution	Tom Dobry
Policy and Regulations	Dave Erickson
Resource Costs	Tom Dobry
Program Risk Management	Roger Bergstrom
M&S	Charles Hutchings
Requirements	Charles Hutchings



Previous Studies WG (Functional Diagram)





Previous T&E Studies Recommendations -- Handout

- **GAO NSAID-00-199 Best Practices** = Best Practices: A More Constructive Test Approach Is Key to Better Weapon System Outcomes, GAO/NSAID-00-199, July 2000.
- **NAP- Statistics, Testing & Acq** = Statistics, Testing and Defense Acquisition: New Approaches and Methodological Improvements, Michael L. Cohen, John E. Rolph, Duane L. Steffy, eds., National Academy Press, Washington, DC, 1998.
- **DT Best Practices Study - DTSEE** = Best Practices Applicable to DoD Developmental Test and Evaluation, SAIC for Directorate of Test, Systems Engineering and Evaluation, Office of the Secretary of Defense, Washington, DC, June 1 1999.
- **DSB T&E Capabilities** = Report of the Defense Science Board Task Force on Test and Evaluation, Office of the Under Secretary of Defense For Acquisition and Technology, Washington, D.C. 20301-3140, September 2000.
- **DSB T&E** = Report of the Defense Science Board Task Force on Test and Evaluation, Office of the Under Secretary of Defense For Acquisition and Technology, Washington, D.C. 20301-3140, September 1999.
- **N76 T&E Study** = N76 Test and Evaluation Study, brief by RADM Edwards, June, 10, 2003.
- **T&E Stakeholder Summit** = Test and Evaluation Stakeholder's Summit brief, September 10, 2003.



New T&E Studies

Lj. Lazic and D. Velasevic, **Applying simulation and design of experiments to the embedded software testing process**, *Softw. Test. Verif. Reliab.* 2004; (in press)

SUMMARY

This paper presents some original solutions with regard to the deployment of the U.S. Department of Defense Simulation, Test and Evaluation Process (DoD STEP), using an automated target tracking radar system as a case study. Besides the integration of modelling and simulation, to form a model-based approach to the software testing process, the number of experiments, i.e. test cases, have been dramatically reduced by applying an optimized design-of-experiment plan and an orthogonal array-based robust testing methodology. Also, computer-based simulation at various abstraction levels of the system/software under test can serve as a test oracle. Simulation-based (stochastic) experiments, combined with optimized design-of-



Questions?